

Stanley

## Stanley Steam Cars

**W**ITH 1911, we begin our fourteenth year of automobile manufacturing. As in the past, our aim continues to be to give the purchaser the best possible automobile value for his money. For speed, efficiency, and durability, our cars cannot be duplicated in any other make, at double our prices.

The reader will find in the subsequent pages of this catalogue mention of some of the new features in our 1911 cars.

**Stanley Motor Carriage Company**

**Newton, Mass.**



## Model 62 Ten Horse-power Runabout for 1911

**\$1,000**

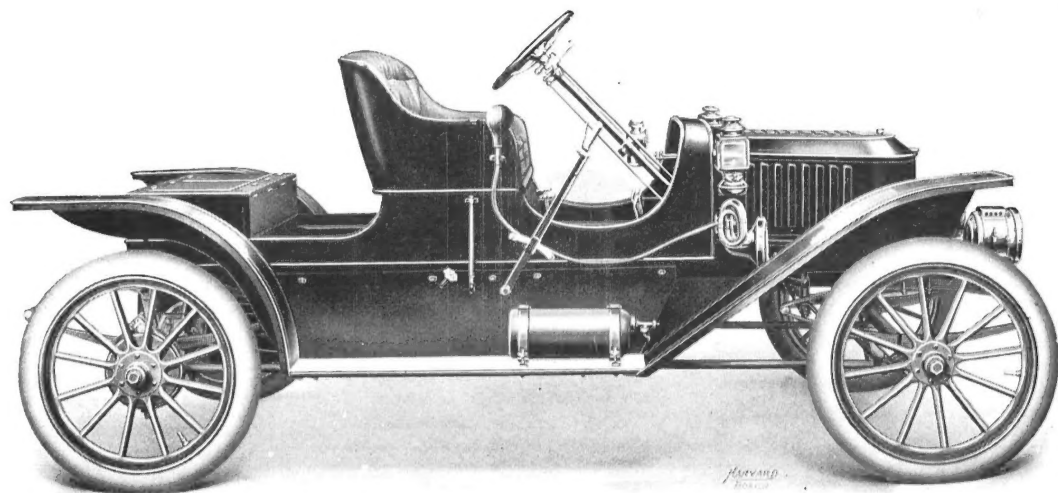
Our new Model 62 runabout, 10 horse-power, for 1911, takes the place of our former 10 horse-power runabouts which were gradually developed from the Model E runabout of 1905 to the Model 60 runabout of 1910.

Many improvements over the earlier types have been incorporated in the Model 62. The size of the engine is  $3\frac{1}{4}$  x  $4\frac{1}{4}$  inches. The bearings, connecting rods, frame rods, and other parts are of the same size and weight as those which were formerly placed in our 20 horse-power engines, such as were used in the Model F and H types. The car has been built more sturdily throughout. The front and rear axle tubing has been increased from  $1\frac{3}{4}$  inch diameter, 14 gauge, to 2 inch diameter, 11 gauge. The differential has been increased in weight and strength so that it is now over twice as strong as on the former runabouts, and the main gear of the differential as well as the pinion is of steel. The wheel base, which was 90 inches on the Models E and EX, and 100 inches on the Model E2, has been increased to 104 inches on the Model 62, and the track has been increased from 54 to 56 inches. At the list price of \$1,000 the car is furnished with a front seat only. We can furnish a rumble seat for \$25 extra, or two rumbles for \$50, or an upholstered flat folding-back seat of the EX type for \$25 extra; or a full rear seat without doors for \$60 extra.

We have increased the strength of all the parts with the object of making this car sturdy enough so that it will carry four people without strain; still we do not recommend it as a strictly four passenger touring car. For such use we recommend instead our 20 horse-power Model 71.

The front axle spindles are offset  $1\frac{1}{2}$  inches, thus lowering the body. The tires are 32 x  $3\frac{1}{2}$  inches. Thus the car sets  $2\frac{1}{2}$  inches lower than the Model 60 of 1909, with 34 inch wheels.

We would call your attention to the preliminary specifications printed herewith, which will give you, we believe, a clear idea of the various improvements.



STANLEY MODEL 62  
Price, \$1,000

## Specifications of Model 62 Ten Horse- power Runabout for 1911

**\$1,000**

**Engine.**  $3\frac{1}{4}$  x  $4\frac{1}{4}$  inches, running in oil bath. Cotter-pin nuts throughout. Ring pistons. Aluminum diaphragm or baffle-plate set  $4\frac{1}{2}$  inches back from stuffing boxes with a separate  $\frac{1}{2}$  inch center case, which can be removed without disturbing the main center case, thus giving easy access to the pistons and stuffing boxes, and preventing the stuffing-box leakage, if any, from getting into the main center case. Gear ratio 40 to 56, so that the engine makes only 739 revolutions to the mile. Hooking-up device as on all our recent cars. Taper bearings for engine hanger strap with cotter-pin nuts, easy of adjustment, the bearing on the cylinders being accessible without removing the cylinder case.

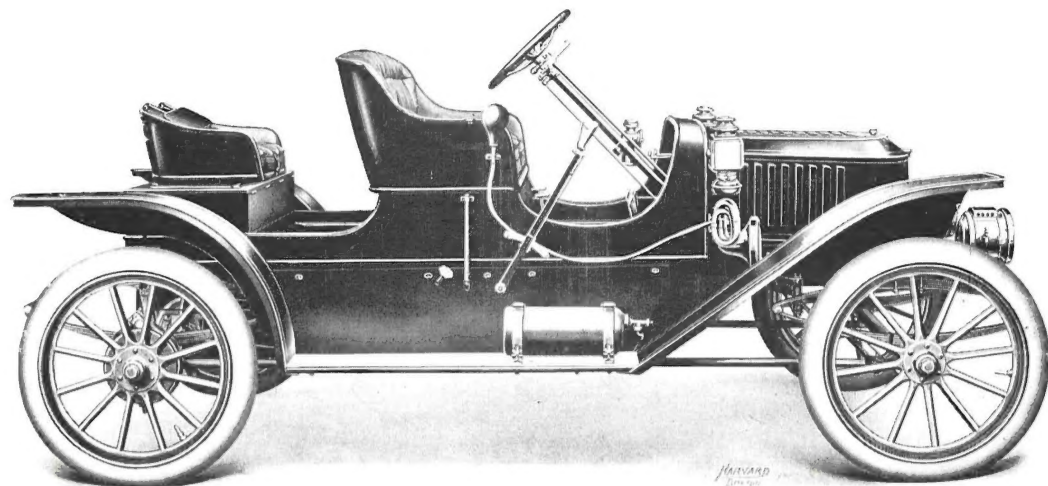
**Boiler.** 18 inches in diameter, of regular Stanley type; lower head and shell pressed out of one piece of steel; top head welded in by oxy-acetylene process. Boiler supported to frame by continuous band of heavy stock. Superheaters heavy gauge steel tubing, heavily nickel plated. Extension water feed as in our 1909 and 1910 cars, feeding the water to the boiler below the water level, thus protecting the boiler checks from steam.

**Burner.** 18 inches in diameter, regular Stanley type.

**Throttle.** As in our 1909 and 1910 cars, detachable without removing the smoke bonnet, etc.

**Pumps.** Like those in our 1909 and 1910 cars. All four pumps (two for water, one for gasoline, one for cylinder oil) are driven direct, without links or ratchets, and all four are actuated by but three moving parts.

**Muffler.** As in our 1909 and 1910 cars, silencing the exhaust to the minimum.



STANLEY MODEL 62, WITH RUMBLE SEAT

Price, \$1,025



## Specifications—Continued

**Front Axle.** 2 inch, 11 gauge tubing ; with offset spindles, dropping the body  $1\frac{1}{2}$  inches lower than in 1910 cars.

**Rear Axle.** 2 inch, 11 gauge tubing. Continuous truss rod, adjustable at both outside ends. Oval yoke around the differential. Inside and outside bearings consist of thirteen balls, increased to  $\frac{3}{8}$  inch in diameter.

**Differential.** 6 pitch teeth, with pinions and bevel gear on the driving shaft of over twice the strength as in our former runabouts.

**Brakes.** Two sets on hubs—internal expanding and external contracting brakes, thermoid lined. Hand lever for the emergency brake. Foot lever for the controlling brake.

**Wheel Base.** 104 inches.

**Tread.** 56 inches.

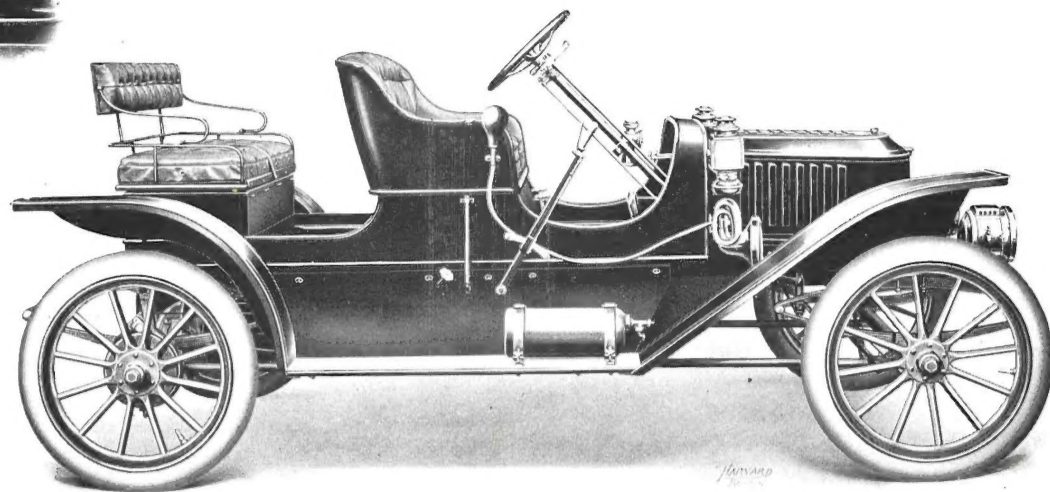
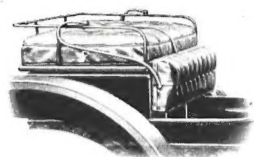
**Wheels.**  $32 \times 3\frac{1}{2}$  inches. Twelve spokes, finest second growth hickory. Ball bearings in front wheels.

**Steering Gear.** Of the pinion and sector type. Adjustable steel pinion at the end of the steering post meshed into steel sector gear. Adjustable cone bearings on front wheel spindles. All steering gear connections have cotter-pin nuts and leather oil-boots. Grease cups on all other steering gear bearings including one on the sector gear stud. Front axle forks which carry the front wheel spindle are set at an angle to reduce the effort of steering—a practice always followed in Stanley cars. (See cut on page 31.)

**Steering Wheel.** 16 inch, sub-imposed upon which are the throttle and by-pass levers.

**Springs.** Full elliptical, front and rear, 36 inches long.

**Mudguards.** Pressed steel mudguards, front and rear, with dropped extension at their outer edge. Front mudguards have integral aprons connecting with the body. The rear guards have integral aprons extending 6 inches below the mudguard.



STANLEY MODEL 62, WITH FLAT REAR SEAT  
Price, \$1,025



## Specifications — Continued

**Hood.** Hood is equipped with a hinged flap in top, as in our 1909 and 1910 cars.

**Body.** Body and sills are of finest ash, the body bayed out 2 inches at either side at about the point of the dashboard, making it wider at the rear than at the front. The toe board of the front seat is set up at a sharp angle, thus giving a brace for the feet.

**Seats.** Ironed for top. Front seat has full panel back with partition in the front, the cushions tilted back. For the rear seat we can furnish a single rumble seat at \$25; a pair of rumble seats at \$50; or a flat upholstered folding-back seat of the EX type for \$25. When a flat seat, or a full seat, either with or without doors, is sold with a car, the cover of the rear box will not be furnished, except when especially ordered, and at an extra charge of \$5.

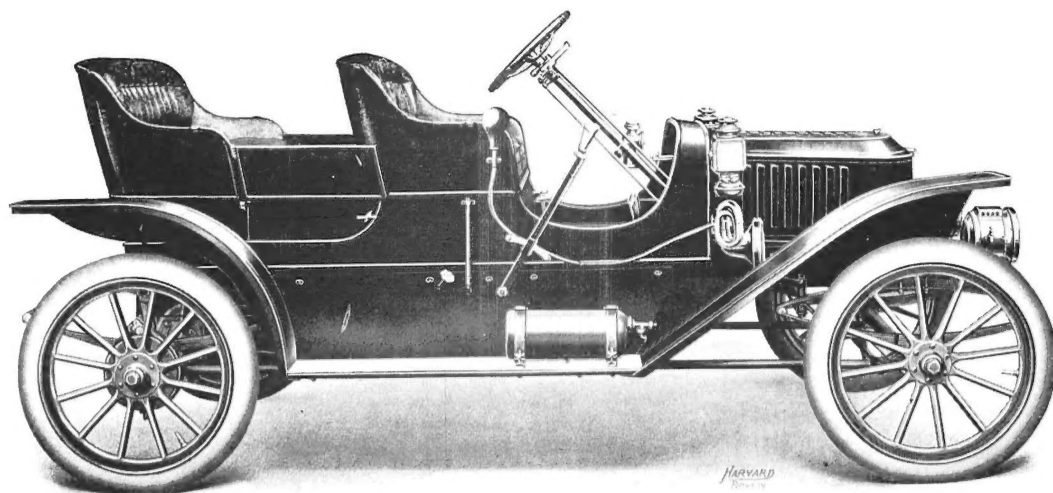
**Water Tank.** Under the front seat; capacity 28 gallons (35 to 45 miles). Strainer easily removed for cleaning. Over-flow stand pipe giving vent so that it is unnecessary to remove the water tank cap when syphoning.

**Gasolene Tank.** At extreme rear, completely protected by the rear box. Capacity 16 gallons (150 to 175 miles).

**Weight.** About 1,400 pounds.

**Equipment.** Two oil side lamps. One oil tail lamp. One oil gauge lamp. Serpentine horn. Pressed steel tool box. Prest-O-Lite tank 12 x 4 inches with acetylene torch for lighting pilot. Full equipment of tools, including tire repair kit. All fittings and accessories will be nickel plated except the lamps and horn, which will be brass.

**Color.** Regular Stanley color combination of Brewster green body and yellow running gear will be followed this year.



STANLEY MODEL 63, WITH DETACHABLE TOY TONNEAU

Price, \$1,125

This car is the same as the Model 62, except that it is equipped with two passenger tonneau which may be removed, giving a runabout as on page 3.

The Model 63 will be sold as above, at \$1,125, which price includes 6 inch Rushmore lamps and Tank E Prest-O-Lite. Four-bow top (for both seats) \$65, including slip cover.

## Model 71 Roadster, Toy Tonneau

The Model 71 roadster is a smart high powered car, for four people.

This car is on the same 20 horse-power plant as the Model 70 touring car. It is quite the same car except as to body and tires. The tires are 36 x 3 1/2 inches all around.

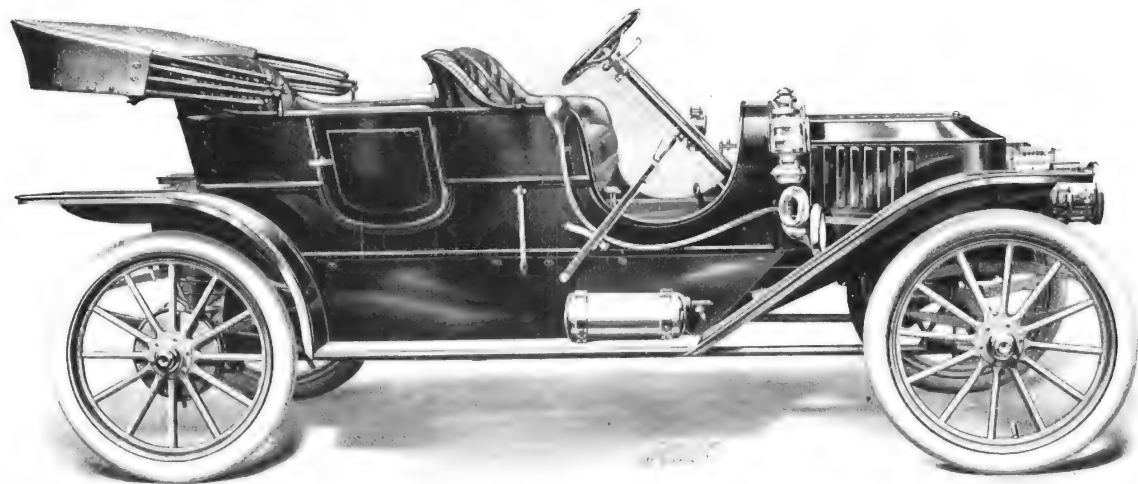
The speed of this car is all that anyone can require in a road car. It is intended for those who wish to hit up a speed of 60 to 70 miles an hour on a good safe road, and still be able to run through city streets without danger of overheating or "stalling."

There is no changing of gears—speed from a creeping pace to a mile a minute or more can be had by simply opening or closing the throttle sub-imposed on the steering wheel.

The Model 71 is valuable also to those who live in hilly districts and find that the average gasoline car at twice or three times the price, will falter on the hills and fail in the emergencies where a little reserve is required. There are many such people, who, with a Model 71 would be relieved of all that anxiety they are now subject to.

The tire cost, usually so heavy on high powered runabouts, is surprisingly small on Stanley roadsters.





MODEL 71. ROADSTER WITH TOY TONNEAU  
Price, \$1,400, top and gas-lamp equipment, extra

## Model 71 Roadster

### Specifications

(For further details, see specifications of Model 62)

Model 71 roadster, seating four.  
23-inch boiler and burner in front under hood.  
4 x 5 inch engine, running in oil bath.  
20 horse-power.  
Throttle and by-pass levers sub-imposed on steering wheel.  
Tires, 36 x 3½ inch all around.  
Wheel base, 115 inches.  
Track, 56 inches.  
Pressed steel mudguards and aprons.  
Full elliptical springs.  
Internal expanding and external contracting brakes on hubs, thermoid lined.  
Gasolene capacity, 125 to 175 miles (16 gallons).  
Water capacity, 45 to 55 miles (36 gallons).  
Oil side, gauge and tail lamps.  
Pressed steel tool-box.  
Prest-O-Lite tank (12 x 4 inches) with acetylene torch for lighting pilot.  
Ironed for top.  
Divided front seat.  
Cape top, mohair or pantasote, including slip cover, \$100 additional.  
Price, net cash, F. O. B. Newton ;

**\$1,400**

## Tires

Stanley cars have always been particularly famous for their quality of easy riding. The full elliptical springs ; and the wooden frames, which absorb a great part of the vibration ; and the absence of a pounding, jarring and vertical motor, all contribute to make this quality. But the large sizes of tires do most of all. There is probably no car in the world so heavily over-tired as the Stanley. We give herewith a table which shows at a glance the wide margin of tire safety in Stanley cars.

Model	Tire equipment	Weight of car about	Tires guaranteed by their makers under cars weighing
60	32 x 3½ in.	1,400 lbs.	2,250 lbs.
61	32 x 3½ „	1,500 „	2,250 „
70	36 x 4 „	2,200 „	3,300 „
71	36 x 3½ „	2,000 „	2,900 „

This wide margin of tire safety not only makes the car ride more easily, but, what is perhaps more important, it cuts the tire cost down materially. Furthermore, it is not the large tire alone that makes the Stanley so easy on tires. The absence of a "clutch" avoids the sudden jumping of the car and the grinding and cutting of the rear tires. The gentle expansion of the steam in the engine cylinders permits the car to start from a standing position without shock, "like a yacht leaving its moorings." Again, the steering gear not being of the so-called irreversible type, the front wheels do not force themselves irresistibly over sharp obstacles, thus causing "stone-bruises" and blow-outs, but deflect easily and slightly, proceeding along the line of least resistance.

Tire up-keep on Stanley cars is undoubtedly lower than on any other cars. The tire manufacturers guarantee their goods for 3,500 miles, on an adjustment basis. Drivers of gasoline cars who have found their tire bills burdensome will be interested in the statement that out of 60 Stanley cars, or 240 tires shipped within one year into the territory of a certain tire branch manager, only two tires were presented to the branch for claims or adjustment.



## Model 70 Touring Car

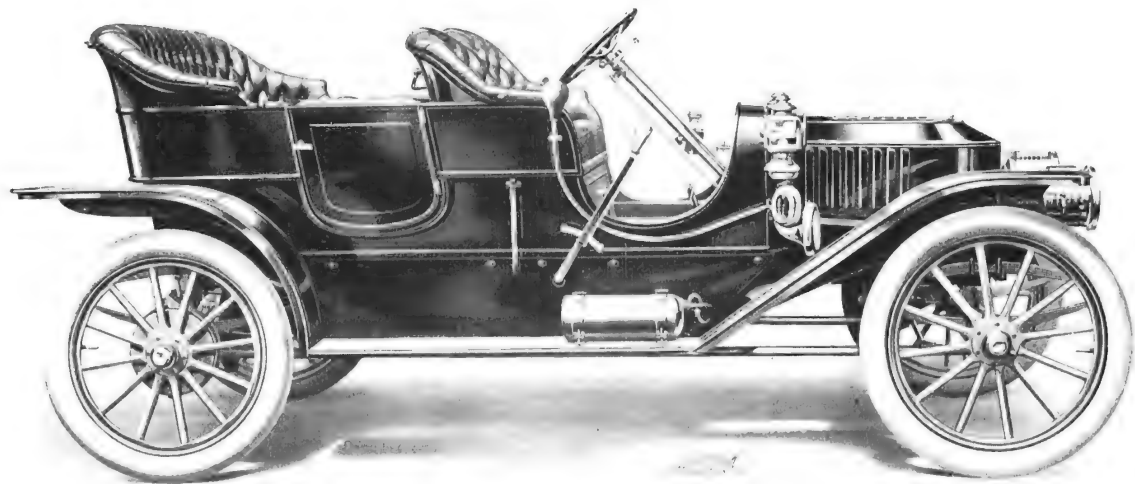
Our Model 70 car is a five passenger touring car with our 20 horse-power plant. This plant consists of a 23 inch boiler and a 4 x 5 inch engine. The engine is equipped with an oil-tight, dust-proof case, the rear members of which are of aluminum. The engine, differential and axle thus run in an oil bath. For full description of engine and other parts (which are alike in all models, except as to size), see the specifications of Model 62.

The Model 70 is large, comfortable and roomy. The wheel base is 115 inches, and the tires are unusually large. The tonneau will take three large people with heavy clothing without crowding; and since the tonneau does not overhang the rear axle it rides exceptionally well.

Since the simple Stanley power plant is, part for part, just the same in the large cars as in the small ones, this large touring car is as easy to drive as a runabout. Hence, the great pleasure of driving a car himself is enjoyed by many a Stanley owner, who would not feel competent or comfortable in driving a gasoline car of equal power.

A Model 70 car, with 36 inch wheels, and geared 43 to 60, makes 560 revolutions per mile as to its rear wheels and 780 revolutions per mile as to its engine. Thus, at 30 miles per hour, the engine will make only 390 revolutions per minute.

The Model 70 is equipped with 36 x 4 inch tires, and is, we believe, the only car in America, listed at less than \$2,500, with tires of this size. The car weighs about 2,200 pounds. The tire manufacturers guarantee their tires of this size under a car weighing 3,300 pounds—which gives our Model 70 a wider factor of safety than any other car.



MODEL 70. FIVE-PASSENGER TOURING CAR  
Price, \$1,500, top and gas-lamp equipment, extra

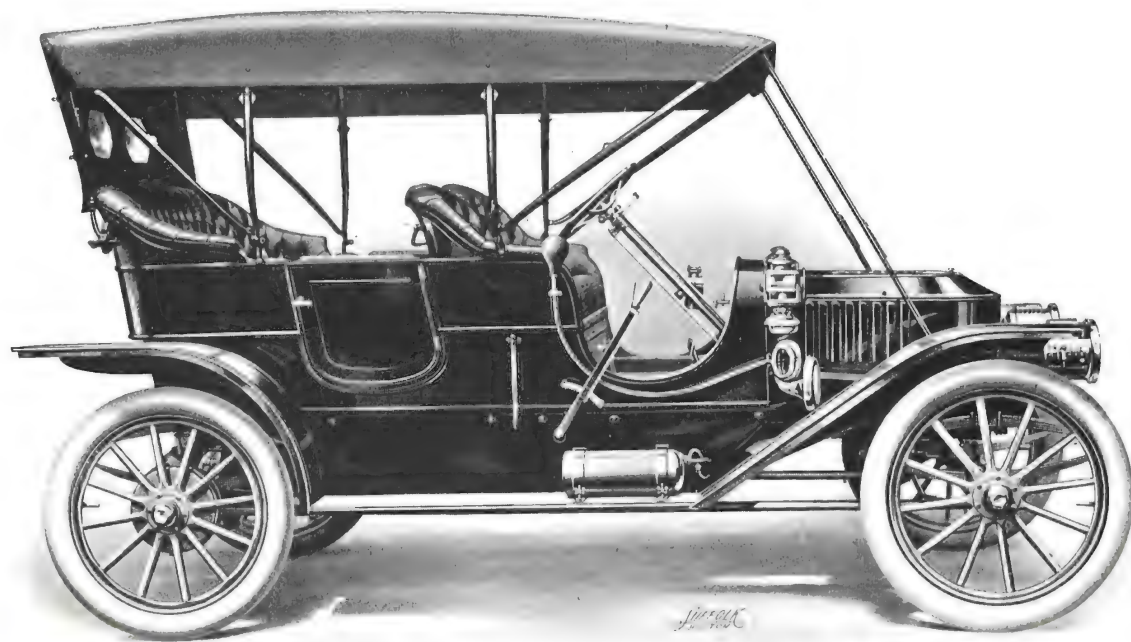
## Model 70 Touring Car

### Specifications

Model 70 touring car, seating five.  
23-inch boiler and burner in front under hood.  
4 x 5 inch engine, running in oil bath.  
20 horse-power.  
Throttle and by-pass levers sub-imposed on steering wheel.  
Tires, 36 x 4 inch all around.  
Wheel base, 115 inches.  
Track, 56 inches.  
Pressed steel mudguards and aprons.  
Full elliptical springs.  
Internal expanding and external contracting brakes on hubs, thermoid lined.  
Gasolene capacity (tank at extreme rear), 125 to 175 miles (16 gallons).  
Water capacity (tank under front seat), 40 to 50 miles (36 gallons).  
Oil side, gauge and tail lamps.  
Robe rail and foot-rest.  
Pressed steel tool-box.  
Prest-O-Lite tank (12 x 4) with acetylene torch for lighting pilot.  
Ironed for top.  
Cape top, mohair or pantasote, including slip cover, \$100 additional.  
Price, net cash, F. O. B. Newton ;

**\$1,500**

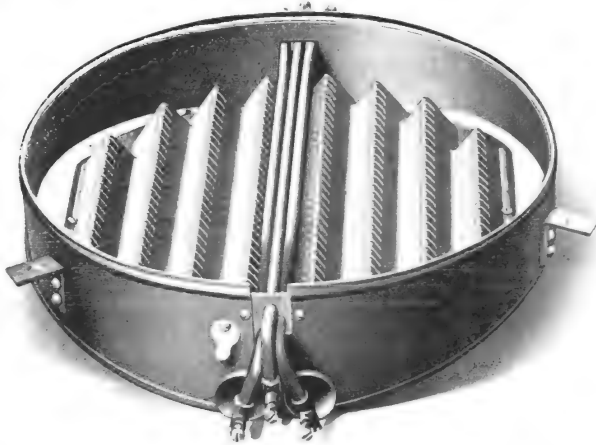




MODEL 70. FIVE-PASSENGER TOURING CAR

## Stanley Burner (Patented)

The Stanley burner consists of a corrugated casting, with a series of slots at the apex of each corrugation; the vaporizer; and the mixing tubes. The gasoline becomes thoroughly vaporized in passing through the tubes of the vaporizer, which are exposed to the flame of the burner. It issues at high velocity from the nozzles and passes into the mixing tubes, drawing in with it the amount of air necessary for perfect combustion. It then enters the chamber below the casting and passes up through the slots, where it burns as in a bunsen burner with a clear blue flame. The pilot light acts similarly, but it has a very small independent casting. The pilot light, burning directly under the vaporizer, keeps it hot while the main burner is not burning, and will relight the main burner after it has been shut off by either the automatic or the hand valve.



Stanley burner, showing vaporizer and mixing tubes, a slotted cast-iron plate, completely encased. In effect a huge bunsen burner, giving perfect combustion.

The burner is so constructed that it secures perfect combustion and intense heat, and is entirely encased, there being no air inlet except the mixing tube; consequently it is not affected by air currents.

The pilot light is not shut off by the automatic, but burns continuously after being lighted until shut off by the hand valve, and is just strong enough to hold the steam pressure. The car can be left standing for several hours with the main burner turned off and still have steam enough to run.

The pressure on the fuel in the auxiliary tank which supplies this burner is maintained automatically when the car is running, and since there is but little gasoline under pressure, it takes but a short time to pump up the pressure by hand before starting. This makes the system a very safe one, as compared with cars where the entire gasoline supply is under pressure.

## Stanley Boiler

The Stanley boiler is of the fire tube type. The lower head is part of the pressed steel shell. The shell is wound with piano wire. The tubes are  $33/64$  inch outside diameter. The tubes are expanded into the heads by means of a taper expander. In



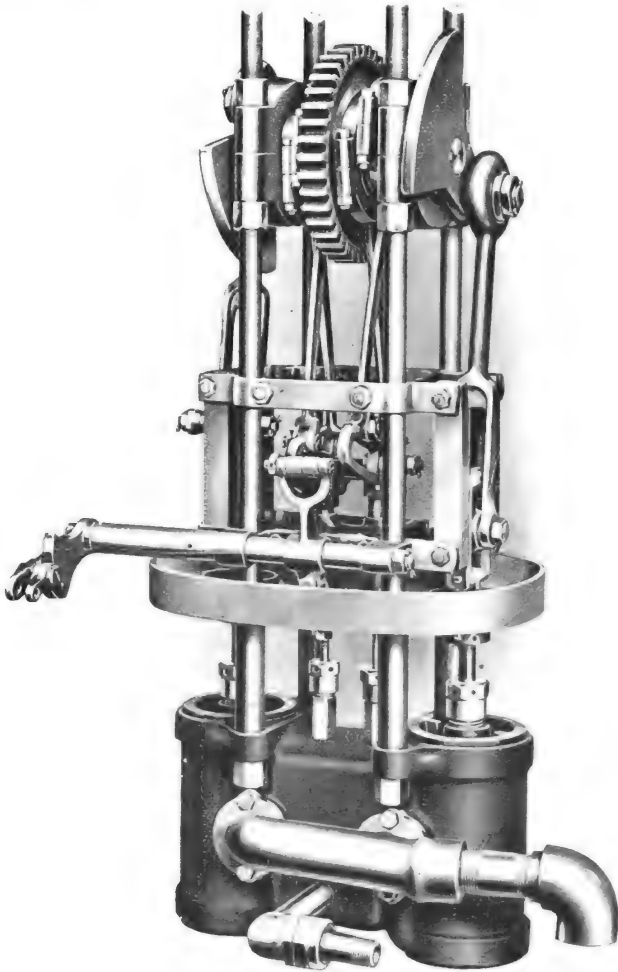
Stanley boiler. The shell and lower head are of one piece, of pressed steel. The bands indicated in the cut are of thin brass, to hold in place the half inch sheet asbestos insulation.

the 18 inch boilers there are 469 tubes, each 14 inches long, with 66 square feet of heating surface. In the 23 inch boilers there are 751 tubes, each 14 inches long, with 104 square feet of heating surface.



## Stanley Engine (*Patented*)

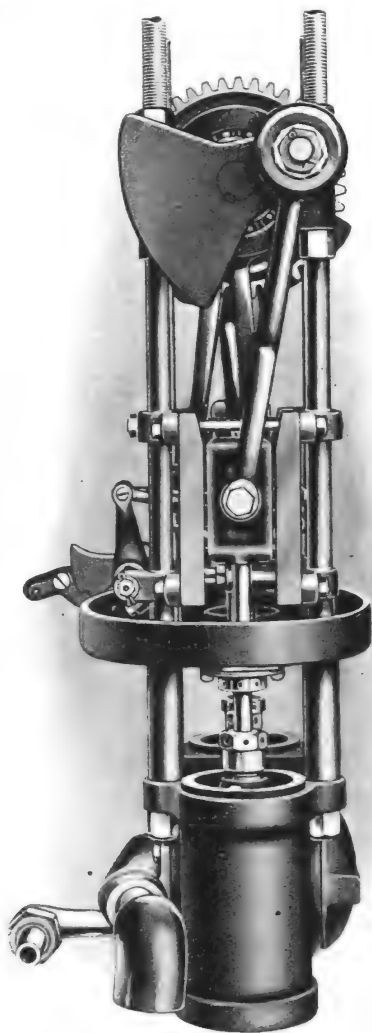
The engine used in the Stanley Steam Car is of our own design and manufacture and is patented. It is two cylinder,



View of Stanley engine, obliquely from above. Showing main-bearing; excentrics; link motion; baffle-plate "hooking-up" device. There are but thirteen moving parts (exclusive of balls) in the Stanley engine.

double acting, of the locomotive type, with plain slide valves and link motion reverse.

This engine is more completely a ball-bearing engine than any other engine in use in an automobile. Even the crossheads



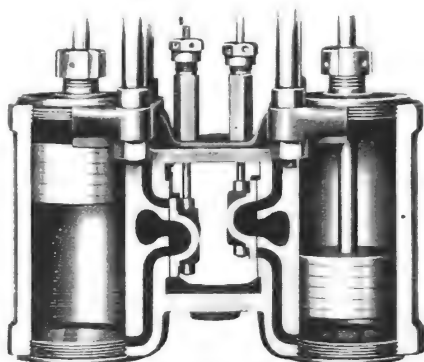
Side view of Stanley engine, showing ball-bearing crosshead, connecting-rod and bearing, with counterbalance; steam chest cover; and exhaust outlet. The Stanley engine is more completely a ball-bearing engine than any other engine used in an automobile.

run on balls. This particular feature has been in use by us more than ten years and is one of the greatest improvements ever made

in automobile engines. The use of balls in the crossheads does away entirely with the loss of power from sliding friction.

The engine is placed horizontally in such a position that the steel gear on the crank shaft of the engine engages the main gear of the differential, thus forming a direct power transmission. The front end of the engine is suspended from the body of the car, and partakes of its up and down motion. The rear end of the engine is connected radially to the rear axle, thus keeping the gears always perfectly adjusted.

The Stanley engine consists of only thirteen moving parts exclusive of balls. Being of the double acting type, each piston gets an impulse at each end of the cylinder. Thus this two



View of part of Stanley engine with cylinders cut away, to show piston and valve motion. The Stanley engine is a simple engine, double acting (four impulses to the revolution), with slide valves and link motion reverse.

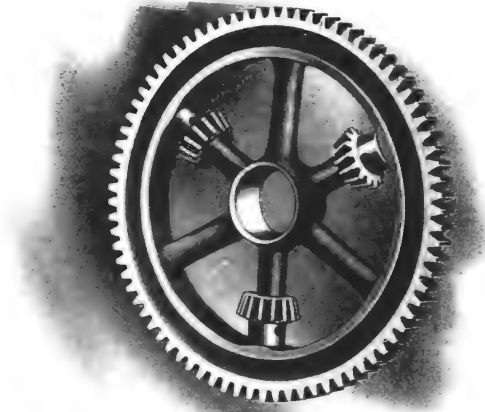
cylinder engine, with only thirteen moving parts, gets as many impulses per revolution as the conventional gasoline engine would get if it had eight cylinders. As a result of this condition, the Stanley engine makes fewer revolutions per mile and, therefore, fewer per minute at a given speed. For instance, a Model 70 car, with 36 inch rear wheels and geared 43 to 60 makes 560 revolutions per mile as to its rear wheels and 780 revolutions per mile as to its engine. Thus, at 30 miles an hour the engine will make only 390 revolutions per minute.

The engine, driving gear and differential are enclosed in an oil-tight and dust-proof case and run in an oil bath.

## Cylinder Lubrication

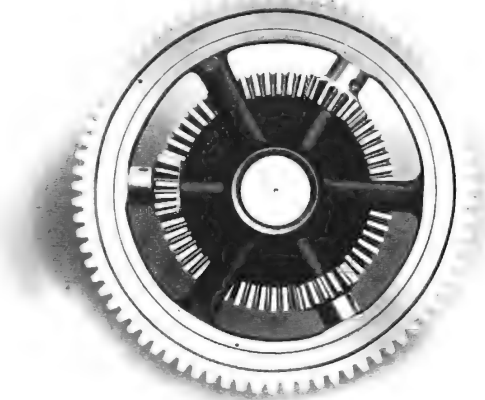
All our cars are equipped with a mechanical cylinder oiler which delivers a definite quantity of oil to the steam chest each mile the vehicle is run. Just as much oil goes in the last mile of the run as the first. This mechanism is very simple and reliable. A sight-feed device on the dashboard shows whether or not the pump is pumping oil.

## Stanley Differential



Stanley driving gear, which meshes into the main gear on the main bearing of the engine, while the bevel pinions mesh into the bevel gears on the driving shafts. The only "transmission" in the Stanley car. Only four moving parts.

The Stanley differential consists of a spur gear and three bevel pinions, thus making only four moving parts. The spur gear meshes directly with the main gear of the engine; and the pinions mesh with the bevel gears affixed to the inner ends of the driving shafts of the rear axle, on the outer ends of which are a round taper and a square section on to which are forced the rear wheels. This is in fact a bevel gear differential, and is what has always been used on Stanley cars. It constitutes the most direct delivery of power from engine to rear wheels of any automobile in the world; and this differential is all the "transmission" there is in a Stanley car.

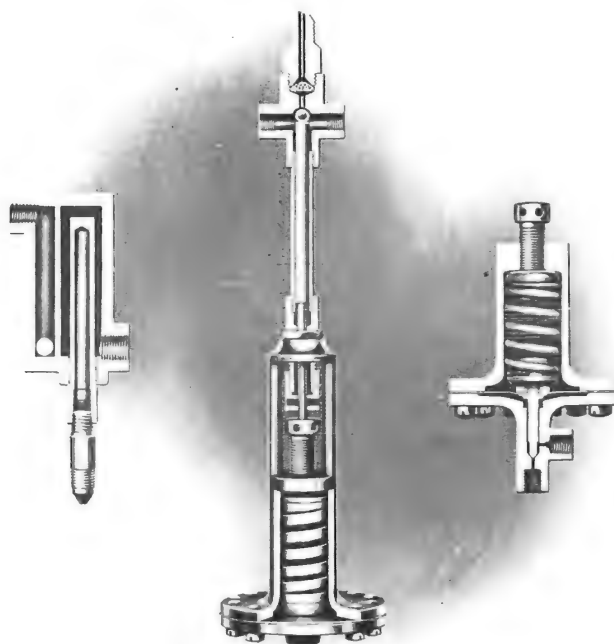


Detail showing Stanley differential and driving gear. The main driving gear with its three bevel pinions, and one driving shaft with its bevel gear, are shown.



## Water Indicator (Patented)

The Stanley cars are equipped with the Stanley glass water level indicator, a patented device of unique design, practically indestructible and absolutely certain in its operation. There are no



Stanley water indicator, a simple and perfectly reliable device with no moving part.

Stanley steam automatic, cut away to show interior. The play of the valve stem is only about  $\frac{1}{16}$  of an inch.

Stanley gasoline automatic, cut away. Valve stem play of about  $\frac{1}{16}$  of an inch.

moving parts or working joints, consequently nothing to wear out or need repair. It shows the level of the water in the boiler by means of a water glass on the dasher. The liquid in the glass which rises or falls to indicate the water level, is cold and under no pressure, and the top of the glass tube is open. It contains two important elements—reliability and durability.

## Automatics

The steam automatic valve is for the purpose of automatically controlling the flow of gasolene to the main burner. It consists of (1) a diaphragm so connected that it is exposed at the bottom to the boiler pressure; and having a valve stem in contact with its upper side; and (2) a spring in contact with the lower end of the valve stem, which spring holds the valve stem off its seat and in contact with the diaphragm until the boiler pressure forces the spring to yield, whereupon the valve stem seats itself. The automatic is provided with an adjusting screw by means of which the tension on the spring can be varied, so as to make it operate at any desired boiler pressure.

The gasolene automatic relief valve is for the purpose of allowing the surplus gasolene (which is automatically pumped while running, in order to insure constant pressure on the fuel) to return to the supply tank. The valve stem is attached to the lower side of the diaphragm, and the spring in this case holds the valve stem on its seat until the pressure on the fuel overcomes the tension on the spring and opens the valve. This automatic is also provided with an adjusting screw.

## Fusible Plug (Patented)

The burning of the boiler is avoided by the use of our fusible plug. When the water in the boiler gets too low, the plug melts out and warns the driver, who at once shuts off the fire, and the boiler is protected.

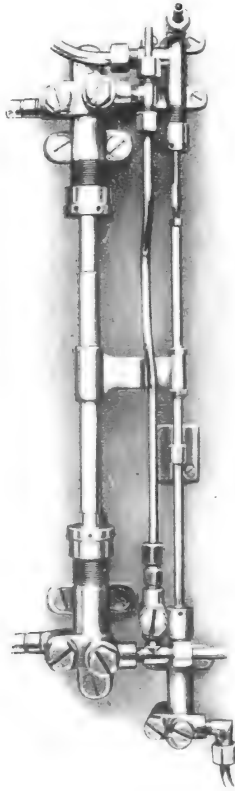
This plug is so situated that it can be quickly removed and a new one put in its place, and after pumping water into the boiler the fire may be relighted and in a few minutes the vehicle is under way again.

## Superheated Steam (Patented)

The use of superheated steam is desirable in two ways. First, it saves water. While water practically costs nothing, it has to be carried, and this adds to the total load. Second, it saves fuel. This costs money. By our patented system of superheating we completely avoid overheating and consequent burning of the cylinder oil. Our system, while securing a high degree of superheat, renders it impossible to overheat.

## Pumps

The pumping system includes two water pumps, one gasoline pump, and one cylinder oil pump, which are so aligned that the four plungers form one (built-up) part. This plunger part is

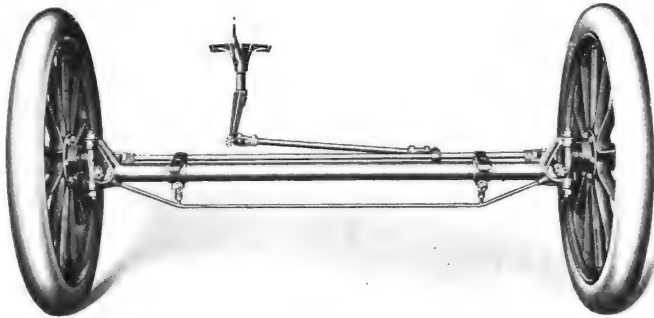


Stanley pumps, showing how the four plungers form one moving part. The two large pumps are for water, one or both of which may be by-passed by the lever on the steering wheel.

actuated from the engine by two other parts, so that in the whole pumping system there are but three moving parts, exclusive of balls. The pumps move constantly while the engine moves, and not independently of the engine. There are also a hand gasoline pump and a hand water pump.

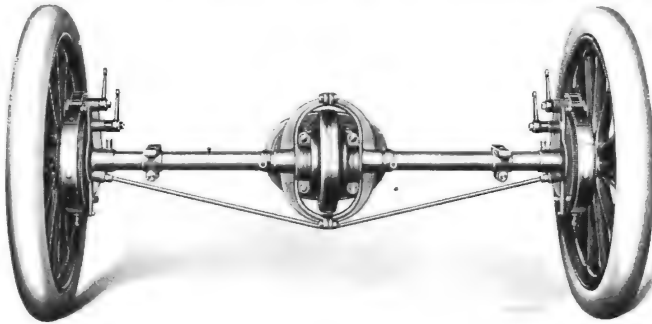
## Axles

The Stanley axles are of straight heavy steel tubing trussed in so skilful a manner that they have the maximum strength with the minimum weight. The front axle is so constructed in relation



Detail of front axle, showing trussing, steering mechanism and rods; and complete protection afforded the steering gear by the axle itself. Only six moving parts in this steering gear.

to the steering mechanism, that the latter is completely protected by the former and no part of the steering mechanism projects below the axle. Thus no obstruction in the road can reach the steering rods unless the axle itself is first demolished.



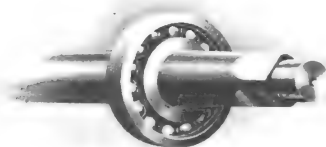
Detail of rear axle showing trussing and oil-tight casing of differential. The large elliptical case is the rear member of the oil-tight engine case.

Furthermore, the lowest points of clearance in the Stanley car are the axles themselves. There are no fly wheels or other



parts in the body of the car projecting so low as the axle lines. Hence, that danger of bringing a low-hung mechanical part into contact with a high point in the road while both front and rear wheels are on lower ground is entirely lacking in Stanley cars. These points of construction, usually given little attention by manufacturers, are among the many features that make the Stanley the safest car on the road. The clearances on Stanley cars are as follows :

Model	Front axle	Rear axle	Lowest point between axles
62	11 in.	8 $\frac{1}{4}$ in.	14 in.
70	13 $\frac{1}{2}$ „	10 $\frac{1}{4}$ „	15 „
71	13 $\frac{1}{2}$ „	10 $\frac{1}{4}$ „	15 „



Wheel-end of rear axle showing ball-bearing ; and squared and tapered sections.

The front axle and spindle are provided with oil cups. The rear axle is lubricated automatically from the engine case.

The wheel-end of the rear axle driving shaft is made with a round tapered section and a squared section. The wheel is forced in to this driving shaft and is held there by a nut with cotter-pin.

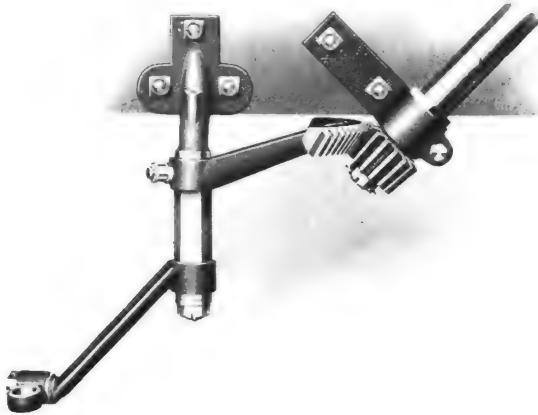
## Brakes

The controlling brakes are of the internal expanding type, located on the hubs, protected from dust, and controlled by a pedal in position under the right foot. The emergency brakes are external contracting, also on the hubs, and controlled by a hand lever. All brakes are lined with thermoid.

The reverse mechanism may also be used as a brake without injury, as when the engine is reversed, the compression of air in the steam chest will act against the forward force of the rear wheels and check it.

## Steering Gear and Mechanism

The Stanley steering gear is of the sector and pinion pattern, and is not of the so-called irreversible type. A pinion at the lower end of the steering post engages the teeth of a sector gear whose bracket is mounted to the frame of the car. The connection between the long arm of the sector gear forging and the spindle levers is completed by only two steering rods.



Detail of pinion, affixed to end of steering post, and sector gear. The hexagon nut just above steering-post bracket permits of plenty of adjustment. The long arm of sector casting connects with steering rods. (See cut of front axle on page 27.)

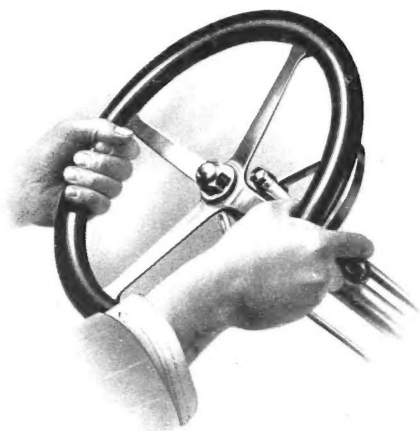
Thus there are but six moving parts in the Stanley steering mechanism—the pinion and post (forming one built-up part); the sector gear forging, the two rods, and the two spindle levers. The whole steering mechanism is completely protected by the front axle, as shown in the cut on page 27.

## Springs

All Stanley cars are equipped with full elliptical springs of the best tempered stock and each size fitted carefully for the weight of car and passengers it carries. No other type of spring adapts itself to both minimum and maximum passenger load, and to both boulevards and rough roads, as does the full elliptical spring.

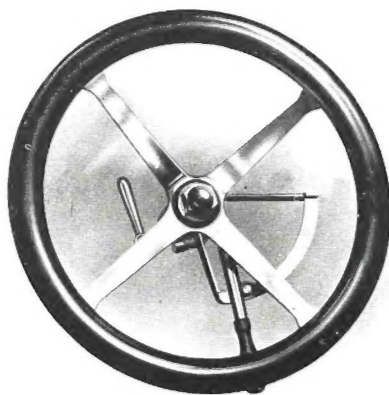
## Steering Wheel and "Control"

Aside from brake and reverse pedals, the entire Stanley control is in the throttle, sub-imposed on steering wheel and operated



Steering wheel, with hands, showing how the throttle-lever is lightly gripped in the fingers without removing the hand from the wheel.

by the right hand. The illustration shows how easily the driver may manipulate the throttle by the index and middle fingers,

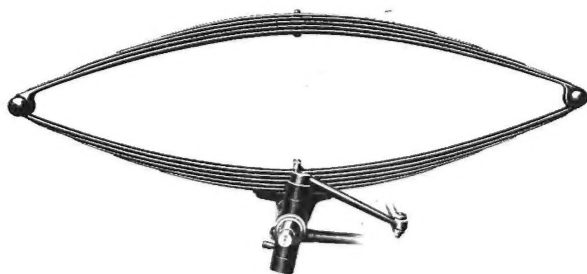


Steering wheel, showing the single throttle in the Stanley system of control locked by its locking screw ; and the by-pass lever.

while still retaining his grip on the wheel. There are no other throttles, and no change-speed levers. The speed of the car is

governed entirely by the amount of steam admitted into the engine, and this amount is determined by the position of one throttle. The entire range of the throttle lever is only a few inches, and in an ordinary day's run, a play of a couple of inches between extremes is all that is required. Stanley control shows up to its best advantage in the two extremes of automobiling—hard mountainous roads and crowded city streets. No unexpected hill or quagmire can "stall" the motor—and no sudden stop or sudden start in city traffic forces the operator to "change speeds." The whole range of conditions is covered by the simple single throttle.

The reverse pedal is in position under the left foot. The controlling brake pedal is in position under the right foot. Ordinarily, these act as foot rests for the operator. The reverse gear may also be used as a brake. All these features make the Stanley control the simplest and the Stanley car the safest on the road.



Front spring and spindle construction, showing how the spindle is set at an angle, to assist in easy steering.

## Front Axle Forks

The front axle forks which carry the front wheel spindle are set at an angle as shown in the illustration of fork and spring above. The point of contact of the wheel on the ground is back of an imaginary line continuing the angle of the fork to the ground. This is the principle of the front fork of a bicycle, and it gives the same effect in steering. It tends to keep the front wheel in line with the rear wheels, and to make the car go straight ahead. Thus the effort of steering is reduced. This construction is particularly advantageous in muddy and sandy roads.



## The Importance of Cylinder Oils

It is costly practice to experiment with cylinder oils. The damage is done within the engine before making itself known to the operator. Observation over a period of many years in our own repair shop has shown us that much of the cylinder, valve and piston trouble, some of which is so mysterious and unaccountable to the driver, is caused by the use of inferior or unsuitable oils.

The question of lubrication is one of vital importance to the economical operation of any car, and it is to the mutual interest of Stanley owners and ourselves that the oil best adapted to meet the requirements existing in Stanley cars should be used at all times. After giving this matter much care and attention, we adopted, and have used exclusively for some years, the Harris Superheat Steam Cylinder Oil, furnished by the A. W. Harris Oil Company, Providence, R. I., and would urge each Stanley owner to have this oil on hand at all times, and always to run his car with this oil, feeling confident that thus the best results will be obtained.

## Location of Parts

In all our cars the boiler and burner are under the hood in front. The mixing tube, blow-off valve, fusible plug and safety valve are at the very front, and in the most accessible places. The brake levers are both in position for the right foot, and the reverse lever for the left foot. The throttle valve and by-pass levers are sub-imposed on the steering wheel. The burner valves, water indicator and gauges are on the dashboard. The cylinder oil tank and water and gasolene pumps are under the front foot board.

## Minor Features

All our cars are equipped with wheel-steering apparatus, and all with artillery wheels; and the selling price includes two side lamps, a tail lamp, and a gauge lamp, a full equipment of tools, and a large serpentine horn. All Models are equipped with full elliptical springs, strong enough to do their work properly, and resilient enough to insure most comfortable riding. The cars have a clearance sufficient to reduce the dust nuisance to practically nothing. We supply a syphon with each car, making it possible to fill the water tank by suction without the use of hose or bucket.

